

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University

B. Sc. (Hons.) Agriculture

Midterm Examination

Academic Year:

Semester: III

Course No.: AGRO-234

Course Title: Crop Production Technology-I

Total marks: 30 (Section 'A'- 15 marks + Section 'B'- 15 marks)

Time: Section 'A'- 20 min & Section 'B' – 1.0 hr)

Date:

Roll No:

Note: 1) Use of laptop, mobile, smart watch is prohibited.

2) Draw neat labelled diagrams wherever necessary.

3) In Section 'A' all questions are compulsory.

4) Section 'A' should be answered in OMR sheet.

SECTION "A"

(15Q x 1M =15 Marks)

Multiple choice questions

- The recommended spacing for transplanted rice under normal conditions is:
A. 10 x 10 cm
B. 15 x 15 cm
C. 20 x 15 cm
D. 25 x 25 cm
- In System of Rice Intensification (SRI), the age of seedlings at transplanting is generally:
A. 10 - 12 days
B. 15 - 20 days
C. 20 - 25 days
D. 25 – 30 days
- Golden Rice was primarily developed to combat:
A. Iron deficiency
B. Vitamin A deficiency
C. Protein deficiency
D. Calcium deficiency
- The presence of HCN in sorghum is mainly due to the compound:
A. Dhurrin
B. Linamarin
C. Amygdalin
D. All of these
- Striga is a:
A. Fungal pathogen
B. Bacterial disease
C. Parasitic weed
D. Nematode pest
- In World, the highest maize-producing country is:
A. China
B. Brazil
C. India
D. USA
- Which type of maize is most widely grown in India?
A. *Zea mays indurata*
B. *Zea mays indentata*
C. *Zea mays saccharata*
D. *Zea mays everta*
- Which of the following post emergence herbicide is best for Maize?

- | | |
|-------------|---------------|
| A. Atrazine | C. Tembotrion |
| B. Simazine | D. Both A & B |
9. Which state is the largest producer of Bajra in India?
- | | |
|----------------|------------|
| A. Maharashtra | C. Haryana |
| B. Rajasthan | D. Gujrat |
10. Ergot-infected grains of bajra contain a toxic alkaloid known as:
- | | |
|--------------|------------------|
| A. Dhurrin | C. Aflatoxin |
| B. Ergotoxin | D. None of these |
11. Which year has been declared as the International Year of Millets by the United Nations?
- | | |
|---------|---------|
| A. 2021 | C. 2023 |
| B. 2022 | D. 2024 |
12. Finger millet is a rich source of which nutrient compared to other cereals?
- | | |
|---------------------|--------------------------|
| A. Iron and Calcium | C. Omega-3 fatty acids |
| B. Vitamin A | D. Lysine and Methionine |
13. The botanical name of cultivated Finger Millet is:
- | | |
|-----------------------------|---------------------------|
| A. <i>Eleusine indica</i> | C. <i>Setaria italica</i> |
| B. <i>Panicum miliaceum</i> | D. None of these |
14. The average protein content in green gram seeds is about:
- | | |
|-----------|------------------|
| A. 18-20% | C. 24-25% |
| B. 15-20% | D. More than 30% |
15. 30% Brine solution treatment is recommended for:
- | | |
|----------|-----------------|
| A. Paddy | C. Jowar |
| B. Bajra | D. All of these |

SECTION "B"

Answer any five questions

(5 X 3 = 15 Marks)

- Q1.** Write cultivation practices of transplanted rice by using following points.
a. Land Preparation b. Manures and Fertilizers c. Harvesting and Threshing
- Q2.** Elaborate the cultivation practices of Sorghum by using the following points.
a. Seed and sowing b. Weed Management c. Varieties
- Q3.** Discuss the economic importance of millets.
- Q4.** Elaborate the cultivation practices of maize under the following points
a. Seed and Sowing b. Nutrient management c. Water management
- Q5.** Prepare a farmer-friendly leaflet on the cultivation practices of "Green gram."
- Q.6** Write a short note on (Any two)
a. Sowing of Bajra b. Dapog Method c. Principles of SRI

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University

B. Sc. (Hons.) Agriculture
Midterm Examination

Academic Year: 2025-2026

Semester: III

Course No.: AGRO 235

Course Title: Rainfed farming and watershed management

Total marks: 30 (Section 'A'- 15 marks + Section 'B'- 15 marks)

Time: Section 'A'- 20 min & Section 'B' – 1.0 hr)

Date:

Roll No:

- Note:** 1) Use of laptop, mobile, smartwatch is prohibited.
2) Draw neat labelled diagrams wherever necessary.
3) In Section 'A' all questions are compulsory.
4) Section 'A' should be answered in OMR sheet.

SECTION "A"

(15Q x 1M =15 Marks)

Multiple choice questions

1. Agronomic measures are effective on gentle slopes up to _____
A. 3% B. 1% C. 7% D. 2%
2. _____ reduces the velocity of runoff and checks the eroded Soil from being washed away
A. mixed B. crop rotation C. strip cropping D. mulching
cropping
3. Contour bunding is generally recommended for areas receiving _____ rainfall
A. more than B. less than 600mm C. 750-1100mm D. 345 mm
600mm
4. _____ is one of the most efficient and Land management practices for in situ moisture conservation
A. broad bed B. contour bunding C. crop rotation D. gully control
furrow
5. _____ is the most suitable plant for vegetative barrier
A. *Cenchrus* B. *Chrysopogon* C. *Cynodon* D. *Cyprus rotundus*
ciliaris *zizaniodes* *dactylon*
6. Dry lands research station was established at _____
A. Rohtak B. Manjri C. Madras D. Solapur
7. Dryland agriculture occupies _____ % of cultivated area
A. 40 B. 60 C. 80 D. 45
8. ICRISAT was established in the year _____
A. 1976 B. 1972 C. 1923 D. 1983
9. Length of growing period in dryland farming

- A. 75 -120 B. 150-200 C. 100-110 D. 50-70
10. _____ soils are often referred to as red soils
A. Vertisols B. Alfisols C. Inceptisols D. Lateritic soil
11. Dry farming demonstration centre started in the year _____
A. 1945 B. 1920 C. 1955 D. 1997
12. Integrated watershed management programme was launched in India in
A. 2009 B. 2004 C. 1788 D. 1964
13. Bench terracing is practiced in _____ % slope range
A. 40-45 B. 16-33 C. 5-12 D. 36-42
14. Growing of a crop which produces maximum cover, reduces soil loss and runoff is called as
A. Base crop B. Relay crop C. Intercrop D. Cover crop
15. _____ is the entire field is divided into small compartments with pre-determined size to retain the rain water where it falls and arrest soil erosion.
A. Contour bunding B. Graded bunding C. Bench terracing D. Compartmental bunding

SECTION "B"

Answer any five questions

(5Q X 3M = 15 Marks)

- Q 1. Write the classification of dryland agriculture depending on the amount of rainfall received
- Q 2. Explain any two agronomic measures of soil and moisture conservation
- Q 3. Write the prospects of rainfed agriculture in India
- Q 4. Write the constraints of rainfed agriculture in India
- Q 5. Write the characteristics of the soil present in rainfed areas
- Q 6. Write a short note on
- Gully control
 - Bench terracing

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University

B. Sc. (Hons.) Agriculture
Midterm Examination

Academic Year:2025-26

Semester: III

Course No.: BIOCHEM 231 Course Title: Fundamentals of biochemistry and biotechnology

Total marks: 30 (Section 'A'- 15 marks + Section 'B'- 15 marks)

Time: Section 'A'- 20 min & Section 'B' – 1.0 hr.)

Date:

Roll No:

Note: 1) Use of laptop, mobile, smartwatch is prohibited.

2) Draw neat labelled diagrams wherever necessary.

3) In Section 'A' all questions are compulsory.

4) Section 'A' should be answered in OMR sheet.

SECTION "A"

(15Q x 1M =15 Marks)

Multiple choice questions

- Biological processes, such as the flow of water within plants and the development of protective barriers in living things are influenced by-----
A. pH B. Surface tension. C. Density D. Buffering capacity
- The ability of cells of the callus to differentiate into a whole plant or a plant organ is termed as
A. Re-differentiation C. De differentiation
B. Undifferentiation D. Cellular potency
- Various technologies applied in plant biotechnology includes
A. Genetic engineering/ recombinant DNA technology
B. Molecular breeding – Marker Assisted Selection 15.
C. Tissue culture
D. All the above
- The term totipotency means
A. the capability of a cell to form an individual plant
B. the capability of a cell to form an individual cell
C. Both A & B
D. None of the above
- The shoot apical meristem is the portion lying distal to the youngest leaf primordium, it is upto about ----- µm in length.
A.200 B. 250 C. 300 D. 150
- The problem of browning of medium can be overcome by
A. Frequent subculturing C. Use of activated charcoal
B. Use of antioxidant D. All the above.
- The methods used for in vitro propagation
A. Enhancing axillary-bud breaking
B. Somatic embryogenesis

- C. Production of adventitious buds
D. All the above
8. This term soma clonal variation was introduced by Larkin and Scowcroft in year
A. 1982. B. 1981 C. 1983 D. 1984
9. Haploid production through anther culture is known as -----
A. Androgenesis C. redifferentiation
B. ovary culture D. Embryogenesis.
10. The relatively high level of auxin to cytokinin favored during organogenesis
A. Root formation C. Shoot formation
B. Both root and shoot formation D. None of the above
11. Nurse culture technique is related to -----
A. Microspore culture C. meristem culture
B. Embryo culture D. Embryo transplant
12. Two monosaccharide units connected by a ----- linkage
A. Peptide linkage C. Hydroxyl linkage
B. Glycosidic linkage D. Covalent linkage
13. _____ group is the basic functional group of proteins.
A. Carbon C. Glycerol
B. Amino acid D. Monosaccharides
14. Principal storage homopolysaccharide found in plant -----
A. Glycogen C. Starch
B. Insulin D. Chitin
15. The commonly used cytokinins in tissue culture are
A. IAA, IBA, NAA, 2,4 D
B. GA3
C. Both A & B
D. BAP, 2-ip, Kinetin, Zeatin

SECTION "B"

Answer any five questions

(5Q x 3M =15 Marks)

- Q1 Define biotechnology and give the application of plant biotechnology
Q2. Define essential amino acid and give the classification of protein amino acid
Q3 Describe different techniques used for sterilization of plant tissue culture growth room chambers and instruments
Q4. Give the application of plant tissue culture in crop improvement
Q5 Enlist different stages of micro propagation and describe any one
Q6 Define mass assisted selection and give the application of endosperm culture in crop improvement.

GOA COLLEGE OF AGRICULTURE

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B. Sc. (Hons.) Agriculture

MID TERM EXAMINATION

Academic Year: 2025-26

Semester: III

Course No.: ENGG-232

Course Title: Farm Machinery and Power

Total Marks: 30 (Section 'A'- 15 marks + Section 'B' – 15 marks)

Time: 1.15 – 2.35 PM (SECTION 'A'- 20 min & SECTION 'B'- 1.0 hr)

Date: 19.08.2025

Roll No: _____

Note:

- 1) Use of laptop, mobile, smartwatch is prohibited
- 2) Draw neat labelled diagrams wherever necessary
- 3) In SECTION "A" all questions are compulsory
- 4) SECTION "A" should be answered in OMR sheet

SECTION "A"

(15 Q X 1 M = 15 Marks)

Multiple choice questions

1. A strong man can develop maximum power of aboutfor doing farm work.

- A. 1.0 HP B. 10 HP C. 0.1 HP D. 0.5 HP

2. Power developed by an average pair of bullocks is aboutfor usual farm work

- A. 1 HP B. 2 HP C. 3 HP D. 0.1 HP

3. The average force a draft animal can exert is nearly.....of its body weight

- A. 2/10 B. 3/10 C. 1/10 D. 9/10

4. The thermal efficiency of diesel engine varies from.....

- A. 40 to 45 % B. 15 to 25 % C. 25 to 32 % D. 32 to 38 %

5. The first tractor manufactured in India by.....

- A. M/s Kubota C. M/s/ Eicher Goodearth
B. M/s Mahindra & Mahindra D. M/s Bajaj

6.type of energy is inexhaustible in nature.

- A. Non-renewable energy C. Mechanical energy
B. Renewable energy D. Nuclear energy

7. When the cycle is completed inrevolutions of the crankshaft, it is called four stroke cycle engine.

- A. One B. Two C. Three D. Four

8. The sequence of events taking place inside the engine cylinder are as follows

- A. Suction $\Rightarrow$ Compression $\Rightarrow$ Power $\Rightarrow$ Exhaust C. Power $\Rightarrow$ Compression $\Rightarrow$ Suction $\Rightarrow$ Exhaust
B. Compression $\Rightarrow$ Suction $\Rightarrow$ Power $\Rightarrow$ Exhaust D. Exhaust $\Rightarrow$ Compression $\Rightarrow$ Power $\Rightarrow$ Suction

(P.T.O.)

9. The camshaft runs at the speed of the crankshaft
 A. Equal B. Double C. Half D. Tripple
10. The Compression ratio of diesel engine varies from
 A. 14:1 to 22:1 B. 4:1 to 8:1 C. 24:1 to 32:1 D. 34:1 to 42:1
11. The carburettor maintains a chemically correct air-fuel ratio of
 A. 20:1 B. 30:1 C. 40:1 D. 15:1
12. Under a single cropping pattern, it is normally recommended to consider 1 hp for everyof land.
 A. 1 hectare B. 2 hectare C. 3 hectare D. 5 hectare
13. The tillage operations in which nearly of crop residues are left on the soil surface is called mulch tillage.
 A. 40 % B. 50 % C. 30 % D. 60 %
14. type mould board is used in sticky soils
 A. General purpose B. Stubble C. Sod D. Slat
15. Disc angle of good plough varies between
 A. 15 to 25° B. 42 to 45° C. 10 to 15° D. 35 to 40°

SECTION "B"

Answer any five questions (5 Q X 3 M = 15 Marks)

- Q.1.** Define Farm Mechanization. Give the Scope, Benefits & Constraints of Farm Mechanization.
- Q.2.** Calculate the brake power of a 4-stroke, 3-cylinder IC engine, having following dimensions:
 a) Cylinder bore (D): 135 mm; b) Stroke length (L): 210 mm
 c) Crankshaft speed (n): 1000 rpm; d) Friction factor (FHP): 15 kW
 e) Mean effective pressure (P): 800 kPa f) No. of cylinder (x): 3
- Q.3.** Explain working of four stroke cycle engine in brief with neat labelled diagrams.
- Q.4.** Enlist and explain different factors considered for selection of tractors
- Q.5.** Explain the fuel supply system of Petrol Engine (Spark Ignition Engine) in brief with neat labelled diagram.
- Q.6.** Enlist & explain different types of mb plough share.

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University

B. Sc. (Hons.) Agriculture

Midterm Examination

Academic Year: 2025-26

Semester: III

Course No.: ENTO 232

Course Title: Insect Ecology & Integrated Pest Management

Total marks: 30 (Section 'A'- 15 marks + Section 'B'- 15 marks)

Time: Section 'A'- 20 min & Section 'B' – 1.0 hr)

Date: 20/08/25

Roll No:

-
- Note:** 1) Use of laptop, mobile, smartwatch is prohibited.
2) Draw neat labelled diagrams wherever necessary.
3) In Section 'A' all questions are compulsory.
4) Section 'A' should be answered in OMR sheet.

SECTION "A"

(15Q x 1M =15 Marks)

- 1) Which of the following is limitation of HPR
 - A. Time consuming
 - B. Biotype
 - C. Genetic limitation
 - D. All of the above
- 2) A complete dependence of one organism over another is called as
 - A. Amnelism
 - B. Mutualism
 - C. Communalism
 - D. None of these
- 3) Insects attract yellow colour
 - A. Aphids
 - B. Thrips
 - C. Jassids
 - D. Grasshopper
- 4) The density of the pest population at which control measures should be applied
 - A. GEP
 - B. EIL
 - C. PBL
 - D. ETL
- 5) The pest which occur in severe form
 - A. Pandemic
 - B. Endemic
 - C. Epidemic
 - D. Sporadic
- 6) Statement: A. Use of resistant variety is a tool of integrated pest management
Statement: B. Use of chemicals is not recommended in integrated pest management
 - A. Only statement A is correct
 - B. Only statement B is correct
 - C. Both statement are correct
 - D. Statement A is correct and B is wrong

- 7) Statement: A. Use of light trap is a mechanical method of pest management
Statement: B. Sticky traps are used to manage sucking pests
A. Only statement A is correct C. Both statements are correct
B. Only statement B is correct D. Statement A is correct and B is wrong
- 8) Which of the following is a regular pest
A. Brinjal shoot and fruit borer C. Locust
B. Paddy Armyworm D. Mango hopper
- 9) Phytosanitary certificate is issued by
A. Importing Country C. Both A and B
B. Exporting Country D. None of these
- 10) IPM reference to
A. Environmental safety C. Timely application
B. Selection of suitable control method D. all of these
- 11) Flame throwers is mostly used for controlling which of the following insect
A. Locusts C. Whiteflies
B. Aphids D. leaf miners

Match the pairs

- | | |
|-------------------|-----------------------|
| 12) Trap Cropping | A. Mustard |
| 13) Rope dragging | B. Resistance variety |
| 14) Light trap | C. Rice Caseworm |
| 15) IR 20 | D. paddy stem borer |

SECTION “B”

Answer any five questions

(5Q x 3M = 15 Marks)

- Q.1 The study of Ecology is important in Pest Management. Explain with examples
- Q.2 Enlist the causes of Pest outbreak. (2 marks). Justify how the large-scale storage of grains contributes to outbreak of pest
- Q.3 Elaborate the tools of Integrated Pest Management
- Q.4 Differentiate between the conventional method of pest management and integrated Pest management.
- Q.5 Interpret advantages and disadvantages of cultural & mechanical method of pest management
- Q.6 Enlist the factor affecting on Economic Threshold Level (1.5 marks). Write in brief about Biotic potential and Environmental resistance.

End of the paper

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University
B. Sc. (Hons.) Agriculture
Midterm Examination

Academic Year: 2025-26

Semester: III

Course No.: GPB 232

Course Title: Fundamentals of Plant Breeding

Total marks: 30 (Section 'A'- 15 marks + Section 'B'- 15 marks)

Time: 9.30 to 10.50 p.m. (Section 'A'- 20 min & Section 'B' – 1.0 hr)

Date: 22.08.2025

Roll No:

Note: 1) Use of laptop, mobile, smartwatch is prohibited.

2) Draw neat labelled diagrams wherever necessary.

3) In Section 'A' all questions are compulsory.

4) Section 'A' should be answered in OMR sheet.

SECTION "A"

(15Q x 1M =15 Marks)

Multiple choice questions/match the pairs

1. First interspecific hybrid in *Dianthus* was developed by
A) Thomas Fairchild (1717) C) Andrew Knight (1800)
B) Mendel (1866) D) None of the above
2. The terms genotype and phenotype were coined by
A) Shull (1903) C) East (1908)
B) Johannsen (1903) D) Davenport (1903)
3. Self-incompatibility can be over come by
A) Bud Pollination C) In vitro fertilization
B) Delayed pollination D) All of the above
4. Cytoplasmic genetic male sterility system includes.....
A) A-line C) R line
B) B-line D) All of these
5. In India, introduction of agricultural and horticultural crops is done by
A) NBPGR, New Delhi
B) Forest Research Institute, Dehradun
C) Botanical Survey of India
D) All of the above
6. Concept of Single Seed Descent method was developed by.....
A) Goulden C) Brim
B) Shull D) Falconer
7. Narrow Sense variability refers to the ratio between
A) Genotypic variance and phenotypic variance
B) Additive variance and phenotypic variance
C) Treatment variance and error variance
D) None of the above
8. Which factors affecting Hardy- Weinberg law
A) Selection C) Mutation

9.is the important cornerstone of plant breeder.
 B) Migration D) All of the above
 A) Selection B) Hybridization
 C) Mutation D) Introduction
10. Male sterility promotes
 A) Autogamy C) Allogamy
 B) Homogamy D) All of these
11. Self-incompatibility reaction may occur.
 A) On the stigma C) In the style
 B) In the ovary D) All of the above

Match the pairs

- | A | B |
|---|---------------------|
| 12. Homozygous and homogeneous population | A) Pure line |
| 13. Heterozygous homogeneous population | B) F1 hybrids |
| 14. Pin and Thrum | C) Primula |
| 15. Ethrel | D) Male gametocides |

SECTION "B"

(5 X 3 = 15 Marks)

- Q1.** Define Plant Breeding. Explain in brief Objectives of plant Breeding.
- Q2.** Write a note on components of genetic variance.
- Q3.** Explain in brief pure line selection along with flow charts, merits and demerits.
- Q4.** Define/explain the following
- a) Broad sense heritability
 - b) Hardy-Weinberg law
 - c) Bulk method of breeding
- Q5.** Define Self incompatibility. Give classification of Self incompatibility and explain in brief how to overcome self-incompatibility in crop plants?
- Q6.** Define male sterility. Enlist different types of male sterility and explain in brief CGMS system of male sterility.

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University
B. Sc. (Hons.) Agriculture
Midterm Examination

Academic Year: 2025-2026

Semester: III

Course No.: HORT-232

Course Title: Production Technology for Vegetables and Spices

Total marks: 30 (Section 'A'- 15 marks + Section 'B'- 15 marks)

Time: 9.30 to 10.50 a.m (Section 'A'- 20 min & Section 'B' – 1.0 hr)

Date:19/08/2025

Roll No:

- Note:** 1) Use of laptop, mobile, smartwatch is prohibited.
2) Draw neat labelled diagrams wherever necessary.
3) In Section 'A' all questions are compulsory.
4) Section 'A' should be answered in OMR sheet.

SECTION "A"

(15Q x 1M =15 Marks)

Multiple choice questions

- In floating garden, a floating base is made from roots of _____.
A. Pampas grass B. Typha grass C. Lemon grass D. None of these
- _____ is a variety of tomato resistant to bacterial wilt
A. Sioux B. Pusa Ruby C. Arka Abha D. Arka Ashish
- Pungency in onion is due to presence of _____.
A. Diallyl propyldisulphide B. Catechol C. Allyl propyldisulphide D. Quercetin
- Bolting in onion can be prevented by spraying of _____.
A. Meleic Hydrazide B. I.B.A C. Oxy acetic acid D. I.A.A
- Botanical name of champa methi is _____.
A. *Trigonella Foeigraceum* B. *Trigonella corniculata* C. *Trigonella indica* D. *Trigonella fenus*
- _____ is wild *spp* of okra immune to Yellow Vein Mosaic Virus
A. *A. manihot* B. *A. tetraphyllus* C. *A. angulosus* D. *A. crinitus*
- _____ *spp* of brinjal is resistant to Fusarium wilt & bacterial wilt.
A. *S. xanthocarpum* B. *S. rostratum* C. *S. torvum* D. *S. muricatum*
- Red colour of chilli is due to _____.
A. capsaicin B. capsanthin C. solanin D. no of these
- Pusa Bedana is seedless variety of watermelon is _____.
A. diploid B. triploid C. tetraploid D. hexaploid
- _____ is gynoeocious F1 hybrid of cucumber.
A. Sheetal B. Poona Kheera C. Phule Prachi D. Kalyanpur
- _____ variety of ridge gourd is having hermaphrodite flower.

- | | | | | |
|--|---------------|----------------|----------------|-------------|
| | A. Pusa Nutan | B. Pusa Nasdar | C. Arka Summet | D. Satputia |
|--|---------------|----------------|----------------|-------------|
12. _____ is considered as origin of chilli
- | | | | |
|-----------|-----------|----------|--------------|
| A. Mexico | B. Brazil | C. China | D. Australia |
|-----------|-----------|----------|--------------|
13. EMS-8 a mutant variety of okra is derived from _____
- | | | | |
|---------------|------------------|-----------------------|-----------------|
| A. Pusa Sawni | B. Pusa Makhmali | C. Perkins Long green | D. Arka Anamika |
|---------------|------------------|-----------------------|-----------------|
14. Garlic contain _____ which as anti-bacterial activity
- | | | | |
|-----------|------------|--------------|-----------|
| A. Niacin | B. Allicin | C. Xenthosin | D. oxylin |
|-----------|------------|--------------|-----------|
15. Which of the following vegetable is G.I product of Goa
- | | | | |
|-----------------|------------------|---------------------|-----------------|
| A. Khola Chilli | B. Harmal Chilli | C. Agassaim Brinjal | D. All of these |
|-----------------|------------------|---------------------|-----------------|

SECTION "B"

Answer any five questions

(5Q X 3M = 15 Marks)

- Q 1. Enlist different types of vegetable gardens and explain in brief any two.
- Q 2. Write in brief about scope and importance of vegetable cultivation in India.
- Q 3. Write in detail about cultivation of tomato on following points
- a) Nursery preparation
 - b) Seed rate & spacing
 - c) harvest & yield
- Q 4. Write in detail about cultivation of okra on following points
- a) climate & soil
 - b) Seed rate & spacing
 - c) harvest & yield
- Q 5. Write in detail about cultivation of watermelon on following points
- a) varieties
 - b) Seed rate & spacing
 - c) harvest & yield
- Q 6. Write a short note on
- a. Sex form in cucurbits
 - b. Physiological disorders in tomato

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University

B. Sc. (Hons.) Agriculture

Midterm Examination (course with Theory and Practical)

Academic Year: 2025-26

Semester: III

Course No.: PATH 232

Course Title: Principles of Integrated Disease Management

Total marks: 30 (Section 'A' - 15 marks + Section 'B' - 15 marks)

Time: Section 'A' - 20 min & Section 'B' - 1.0 hr)

Date: 18/08/2025

Roll No:

Note: 1) Use of laptop, mobile, smartwatch is prohibited.

5) Draw neat labelled diagrams wherever necessary.

6) In Section 'A' all questions are compulsory.

7) Section 'A' should be answered in OMR sheet.

SECTION "A"

(15Q x 1M = 15 Marks)

Multiple choice questions/Match the pairs

1. The concept of initiating control measures only when disease levels can cause economic loss is based on:

A. Economic Threshold Level (ETL)

B. Disease forecasting

C. Quarantine laws

D. Economic Injury Level (EIL)

2. Which plant disease led to the discovery of Bordeaux mixture?

A. Powdery mildew of grapes

B. Late blight of potato

C. Downy mildew of grapes

D. Rust of wheat

3. Once a pathogen has established in an area, the steps taken to remove or destroy it are known as:

A. Exclusion

B. Eradication

C. Immunization

D. Protection

4. The legal restriction on the movement of plant material to prevent the introduction of diseases into a new area is called:

A. Sanitation

B. Quarantine

C. Eradication

D. Immunization

5. Which of the following are mechanisms of biological control of plant pathogens?

A. Parasitism

B. Antibiosis

C. Competition

D. All of the above

6. Epidemics like late blight of potato in Ireland (1845–47) mainly cause:

A. Localized market fluctuations only

B. Soil fertility improvement

C. Large-scale famine and migration

D. Increase in biodiversity

7. The historical disease outbreak known as "St. Anthony's Fire" was caused by consumption of grains infected with:

A. Ergot of rye

B. Wheat rust

C. Brown spot of rice

D. Bacterial leaf blight of rice.

8. Pest Risk Analysis is primarily conducted to:

A. Identify potential quarantine pests before import

B. Prevent entry and establishment of invasive pests

C. Evaluate pathways for pest introduction through trade

D. All of the above

9. In Pest Risk Analysis, pest risk assessment refers to:

- A. Identifying the potential pathways of pest introduction
- B. Estimating the likelihood of pest establishment and spread
- C. Selecting appropriate phytosanitary measures
- D. All of the above

10. The blotter method is commonly used to detect:

- A. Soil-borne bacteria
- B. Seed-borne fungi
- C. Viral particles in sap
- D. Nutrient deficiencies

11. Disease incidence is defined as:

- A. Proportion of plant area destroyed by a pathogen
- B. Number of lesions per leaf
- C. Number or proportion of diseased plant units in relation to total units examined
- D. Amount of pathogen biomass in plant tissue

Match the pairs

	A Detection / Diagnostic Method		B Description
12	PCR	A	Measures chlorophyll fluorescence changes to detect stress or infection
13	FISH	B	Molecular method for amplifying and detecting specific pathogen DNA/RNA
14	Fluorescence imaging	C	Uses fluorescent DNA probes to detect pathogen-specific sequences in plant samples
15	Gas chromatography	D	Identifies plant disease by detecting pathogen-induced volatile organic compounds.

SECTION “B”

Answer any five questions

(5Q X 3M = 15 Marks)

- Q1. Enlist different methods of plant disease Management and briefly explain the Cultural method.
- Q2. Differentiate between (a) Diagnosis and Detection (b) Disease incidence and Disease severity
(b) Quarantine and regulated non quarantine pest (Any two)
- Q3. Explain any three economic impacts of plant diseases
- Q4. Define IDM and briefly explain the advantages of IDM in sustainable agriculture.
- Q5. Write down the advantages and disadvantages of biological control over chemical control?
- Q6. Enlist different methods of Disease diagnosis and explain any one.

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University

B. Sc. (Hons.) Agriculture
Midterm Examination

Academic Year: 2025-26

Semester: III

Course No.: STAT-231

Course Title: Statistical Methods

Total marks: 30 (Section 'A'- 15 marks + Section 'B'- 15 marks)

Time: 1.15 p m - 2.35 p m (Section 'A'- 20 min & Section 'B' – 1.0 hr)

Date: 21/08/2025

Roll No:

-
- Note:** 1) Use of laptop, mobile, smartwatch is prohibited.
2) Draw neat labelled diagrams wherever necessary.
3) In Section 'A' all questions are compulsory.
4) Section 'A' should be answered in OMR sheet.

SECTION "A"

(15Q x 1M =15 Marks)

Multiple choice questions

- 1) A Measure calculated from population data is called as.....
A) Statistic B) Parameter C) frequency D) Probability
- 2) Non- Probability sampling method is
A) Quota sampling B) Cluster sampling C) Random sampling D) Multistage sampling
- 3) Ogive curve is used to calculate the
A) Harmonic Mean B) Median C) Geometric man D) Arithmetic Mean
- 4) Best measure of Dispersion is
A) Standard Deviation B) Mean Deviation C) Range D) Quartile Deviation
- 5) If mean= 5, median= 4 then mode is
A) 6 B) 3 C) 2 D) 8
- 6) Concept of Standard Deviation was introduced by
A) Bowley B) Galton C) Karl Pearson D) Fisher
- 7) What is the range of data: 6, 12, 7, 9, 20, 25, 30.
A) 25 B) 24 C) 26 D) 30
- 8) Second quartile (Q_2) in quartile deviation represent the.....
A) Median B) Mode C) Mean D) Mean deviation

- 9) Data which is collected directly by the researchers through survey is called
 A) Secondary data B) Discrete Data C) Primary data D) Continuous Data
- 10) Formula to calculate Standard Deviation is
 A) $S.D = \sqrt{\frac{\sum(x-\bar{x})}{n}}$ B) $S.D = \sqrt{\frac{\sum(\bar{X})}{n}}$ C) $S.D = \sqrt{\frac{(x-\bar{x})}{n}}$ D) $S.D = \sqrt{\frac{\sum(x-\bar{x})^2}{n}}$
- 11) Data which takes only the takes exact no. (whole numbers) is called as
 A) Spatial data B) Discrete Data C) Time series data D) Continuous data
- 12).is the reciprocal of arithmetic mean
 A) Mode B) Geometric mean C) harmonic mean D) Median
- 13) Calculate the Arithmetic mean of data: 40, 25, 5, 20, 10
 A) 25 B) 20 C) 30 D) 15
- 14) When mid-point of histogram is joined with straight line will get the
 A) frequency curve B) frequency polygon C) Ogive curve D) Bar graph
- 15) Value that divides the array into ten equal parts is called
 A) Percentile B) Quartile C) Decile D) Quintile

SECTION “B”

Answer any five questions

(5Q X 3M = 15 Marks)

- Q.1. Define Statistics. Give the Scope and Limitation of Statistics.
- Q.2. Define Sample. Give the list of methods use for sampling and explain any one in detail.
- Q. 3. What are types of averages. Explain in detail the positional averages.
- Q.4. Find the mean, mode and median for data: 10, 15, 20, 5, 10, 5, 5
- Q.5. Define dispersion and write the significance of dispersion. Enlist the measure of Dispersion.
- Q.6. Draw the frequency curve and histogram for following data

Class Interval	Frequency
0-10	10
10-20	5
20-30	25
30-40	15
40-50	5

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University

B. Sc. (Hons.) Agriculture

MID TERM EXAMINATION

Academic Year: 2025-26

Semester: III

Course No.: COMP-231

Course Title: Agri-informatics

Total Marks: 30 (Section 'A'- 15 marks + Section 'B' – 15 marks)

Time: 1.15 – 2.35 PM (SECTION 'A'- 20 min & SECTION 'B'- 1.0 hr)

Date: 22-08-2025

Roll No: _____

Note:

- 1) Use of laptop, mobile, smartwatch is prohibited
- 2) Draw neat labelled diagrams wherever necessary
- 3) In SECTION "A" all questions are compulsory
- 4) SECTION "A" should be answered in OMR sheet

SECTION "A"

(15 Q X 1 M = 15 Marks)

Multiple choice questions

1. -----is an input Device.

- A. Printer B. Plotter C. Micro phone D. RAM

2. A set of instructions is called -----.

- A. Software B. Program C. Hardware D. firmware

3. -----is act as a bridge between hardware and operating system.

- A. Hardware B. Software C. System D. Firmware

4. CPU means -----.

- A. Central Program Unit B. Central Processing Unit
C. Central Program Unit D. None of the above

5. -----is a permanent form of storage.

- A. RAM C. ROM
B. Hard Disk D. Flash Disk

6. -----is an output device.

- A. Printer C. Scanner
B. Touch pad D. Track ball

7. Laser light as part of process of reading or writing data to or from optical disc is-----

- A. Flash disk B. Hard drive C. Optical disc drive D. None of the above

8. 1 Megabyte =-----Kilobyte

- A. 1030 C. 1025
B. 1024 D. 1010

(P.T.O.)

9. System software that manages all hardware and software of computer is-----.
- A. Input Device B. output Device C. Operating System D. Memory
10. -----software is also known as an application or an “app”.
- A. Application B. System C. LINUX D. OPERA
11. -----is a software that manages all software and hardware of computer.
- A. Operating System B. Input Device C. Output Device D. Memory
12. A software responsible for controlling, integrating and managing hardware of the computer is-----.
- A. Microsoft Windows C. System software
- B. Application Software D. Opera
13. -----translate data from human understand to one that of computer can work with it.
- A. Input Device B. Output Device C. Hardware D. System software
14. RAM means-----
- A. Random Access Memory C. Read Only Memory
- B. Read at Memory D. Read Also Memory
15. ALU, memory unit and control unit are the components of-----.
- A. Hardware B.CPU C. Input Device D. Microsoft Windows

SECTION “B”

Answer any five questions

(5 Q X 3 M = 15 Marks)

- Q.1.** Define computer. Enlist and draw component of computer.
- Q.2.** a. Explain Hardware, Software and Firmware.
b. Enlist functions of firmware.
- Q.3.** Give difference between Hardware and software.
- Q.4.** Define Operating system. Explain any six functions of operating system.
- Q.5.** Give difference between system software and application software.
- Q.6.** Explain functions of GUI and Enlist benefits of GUI for file management.

GOA COLLEGE OF AGRICULTURE

Affiliated to Goa University

B. Sc. (Hons.) Agriculture

Midterm Examination

Course No.: ESDM-231

Semester: III

Course Title: Environmental studies & disaster management

Maximum Marks: 30

Academic Year: 2025-26

Time: 1 hr 20 min.

Date:

Roll No:

Note:

- 1) In Section 'A' & 'B' all questions are compulsory.
- 2) Use of laptop, Mobile, calculator, etc. is prohibited.

SECTION "A"

(15 Marks)

Q1. Multiple choice questions

- i. Which of these layers of the atmosphere consists of the ozone layer that is responsible for absorbing the Ultra-Violet (UV) light?
a. Troposphere b. Mesosphere c. Stratosphere d. All of the above
- ii. How many total numbers of biodiversity hotspots are there in the world?
a. 36 b. 32 c. 28 d. 18
- iii. Which of these are also known as Detrivores?
a. Decomposers b. Carnivores c. Herbivores d. None of the above
- iv. Most stable ecosystem is....
a. Forest b. Desert c. Ocean d. Mountain
- v. The ecological pyramid always starts with the following at the base...
a. Decomposer b. Producer c. Consumer d. None of these
- vi. Conservation of biodiversity outside the natural habitat is called as...
a. Ex-situ b. In-situ c. Conservation d. In-vivo
- vii. Which out of the following are the causes of soil erosion?
a. Unrestricted grazing b. Over cultivation c. Deforestation d. All of the above

- viii. Which one of the following is not included under in situ conservation?
 a. Zoo b. National Park c. Wild life Sanctuary d. Biosphere Reserve
- ix. A poisonous gas given out of vehicles exhaust is....
 a. Carbon monoxide b. Ethane c. Methane d. Carbon dioxide
- x. Pollutants that are easily manageable and decomposable in nature are called....
 a. Biodegradable pollutants b. Non-biodegradable pollutants
 c. Renewable pollutants d. None of these
- xi. BOD stands for
 a. Biotic oxidation demand b. Biological oxygen demand
 c. Biological oxidation demand d. Biochemical oxygen demand

Q2. Match the pairs

A	B
i. Cyclone	A. Herbivorous
ii. Cow	B. Natural Disaster
iii. Eagles	C. Non Bio-degradable waste
iv. Broken glass pieces	D. Carnivorous

SECTION "B"

(5 X 3 = 15 Marks)

Q3. Answer any Five of the following

- Q. i.** Define environment. Write scope & importance of environmental studies.
- Q. ii.** Define biodiversity. Explain in detail types of biodiversity?
- Q. iii.** Write down in detail causes and consequences of deforestation?
- Q. iv.** Define resources. State its type and explain in detail forms of energy?
- Q.v.** Define Ecosystem. Explain in detail types of ecosystems and function?
- Q. vi.** Explain in details about drought and its types.
